

SAMPLE IPA ESSAY
Standard #2 (Coherence/Continuity)
Grade Five

The coherence and continuity standard emphasizes an uninterrupted flow of information that is centered around systematic sequencing that is adapted to slowly build a logical and consistent new knowledge base for students. To incorporate this standard, the teacher must consider students' previous learning and the learning that will take place in the future while implementing instruction that is both at the appropriate level of difficulty for students and is supportive to their intellectual and social development in real world settings. Integrating content from the disciplines that are currently being taught aids in making the subject matter more meaningful to students and enables them to sequentially move from concrete to more abstract thought. By uniting learning theories and strategies in the lesson the majority of students are accommodated and thus have the ability to thrive in a positive learning environment.

The following line graph lesson was tailored toward students who had some previous experience with using coordinates to plot points on graphs, but still had difficulty in comprehending that line graphs in particular, measure things over time. They also were confused about the structure of a line graph and how to plot points on it. In order to make these challenges comprehensible to students a certain amount of scaffolding was necessary. According to Lev Vygotsky, "It remains necessary to determine the lowest threshold at which learning may begin (Vygotsky 265)¹." Therefore, this lesson began at the very bottom, not at plotting points on and interpreting line graphs, but at the basic structure of a graph including locating the lines that fall on the x and y axes. Then it moved toward labeling a line graph including arranging on the graph what is being measured and the time scale. After that, meshing the concept of identifying the point at which a y-axis line and an x-axis line intersect according to the information posed in the word problems is addressed. Finally, the interpretation of the visual representation of the graph had been worked up to in a systematic and sequential manner. As seen in Activity one, Gardner's theory of multiple intelligences is implemented. Students use pencils or their fingers to bring to life the y and, x-axis by making the shape of an "L" that symbolizes the vertical and horizontal lines on a graph that are the x and y axes. Students came up to the board and used colored

¹Berger, Kathleen S. (1998) The Developing Person Throughout the Life Span 4dEd.. Lev Vygotsky (1934/1986)

markers to trace lines along both axes while verbally identifying them. These exercises catered to visual, kinesthetic, logical/mathematical, linguistic and spatial learners because they were all able to see and feel the graph by using simple manipulatives such as their fingers and pencils and by coming to the board and physically tracing and verbally identifying the lines while viewing the spatial aspects of the large, blank graph that consists of lines that "lay down" (x-axis) and lines that "stand up" (y axis).

After I had provided a detailed breakdown of graph structure (Activity 1), I then systematically provided guided instruction on how to utilize a word problem to label a line graph and then how to plot and connect the corresponding points on it as a class (Activities 2&3). Once the class had completed this task, I extended student learning further by facilitating instruction concerning the line that was formed by the plotted points in reference to the questions posed in the word problem indicated (Activity 3). Following these parts of the learning scope and sequence, I provided more line graph interpretation by closely examining an already completed graph (Activity 4) so that students could be knowledgeable about line graph components as a whole cohesive process that would yield an interpretable product. Once students had reached the zone of proximal development they were faced with the challenge of working independently to practice plotting points on their own chosen animal line graphs under the guidance of the teacher (Activity 5). The lesson's systematic closure was reached when the students shared with the class the logical explanation between the data within their word problems and the visual representation of that data displayed mathematically (Activity 6).